

Seth M. Munson

USGS - Southwest Biological Science Center
Canyonlands Research Station
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Education:

Colorado State University, Fort Collins, CO
Ph.D. Ecology, May 2009

Earlham College, Richmond, IN
B.A. Biology, May 2001

Research

Interests: Ecosystem Ecology, Arid Land Ecology, Plant Community Ecology, Restoration Ecology, Biogeochemistry, Soil Erosion

Research

Experience:

Dec 2008 – Present; Ecologist, US Geological Survey, Moab, UT and Denver, CO

May 2004 – Nov 2008; Graduate Research Assistant, Colorado State University – SGS LTER, Fort Collins, CO

Sep 2002 – May 2004; Field Research Associate, University of New Mexico – SEV LTER, Albuquerque, NM

Apr 2002 – Sep 2002; Biological Technician, USDA Forest Service, Lakeside, AZ

Oct 2001 – Feb 2002; Biological Intern, US Geological Survey-BRD Pacific Island Ecosystem Research Center, Hawaii Volcanoes National Park, HI

May 2001 – Oct 2001; Biological Technician, USDA Forest Service, Safford, AZ

Aug 2000 – Apr 2001; Entomology Researcher, Earlham College, Richmond, IN

May 2000 – June 2000; Herpetology Research Assistant, Crescent Lake National Wildlife Refuge, NE

Teaching

Experience:

Jan 2008 – May 2008; Instructor for Genes to Ecosystems: Graduate Seminar in Ecological Genomics, Colorado State University

May 2007 – Aug 2007, Jun 2006 – Aug 2006, Jun 2003 – Aug 2003; Mentor for NSF Research Experience for Undergraduate program, University of New Mexico, Colorado State University

Aug 2006 – Dec 2006, Aug 2005 – Dec 2005; Graduate Teaching Assistant for Rangeland Ecogeography, Colorado State University

Aug 2006 – Dec 2006, Aug 2005 – Dec 2005; Instructor for Ecological Undergraduate Research Experience, Colorado State University

Jan 2001 – May 2001; Teaching Assistant for Vertebrate Zoology, Earlham College

Grants/Awards:

August 2011: National Park Service Climate Change Program, \$30,000 (PI)

May 2011: USGS National Park Monitoring Project, \$102,601 (PI)

July 2010: USGS Data Rescue Project, \$3,000 (PI)

Dec. 2009: USGS National Park Monitoring Project, \$99,222 (PI)

July 2009: Warner College of Natural Resources Fellowship \$1,500 (PI)

May 2007 – Jan 2008; National Fish and Wildlife Foundation. Native Plant Conservation Initiative, \$5,000 (PI)

Aug. 2002: U.S. Forest Service Spot Award

May 2001: College Honors, Departmental Honors, Honors on Senior Comprehensive Exams, Millard S. Markle Award in Biology (Earlham College)

Research in the Media:

Wired Magazine (7/12/11): “Supersize dust storms could become Southwest norm”; Salt Lake City Tribune (5/13/11): “Climate change to create a dustier Southwest”; Climate Central (5/10/11): “Warmer temperatures could bring more dust to the Southwest”; USGS Newsroom (2/24/11): “Drier conditions projected to accelerate dust storms in the Southwest”; To appear in Arizona Daily Star (Tucson), GeoHealth Newsletter

Publications:

Munson, S.M. and W.K. Lauenroth. Controls of vegetation structure and net primary production in restored grasslands. *Ecosystems* (In Review).

Munson, S.M., W.K. Lauenroth, and I.C. Burke. Soil carbon and nitrogen changes on semiarid Conservation Reserve Program lands. *Journal of Arid Environments* (In Review).

Munson, S.M., J.A. Hubbard, J. Belnap, R.H. Webb, D.E. Swann, S. Rutman. Forecasting climate change impacts to plant community composition in the Sonoran Desert region. *Global Change Biology* (Accepted Pending Revision).

Belnap, J., S.M. Munson, and J.P. Field. Aeolian and fluvial processes in dryland regions: the need for integrated studies. *Ecohydrology* (In Press).

Munson, S.M. and W.K. Lauenroth. Plant community recovery following restoration in semiarid grasslands. *Restoration Ecology* (In Press).

Munson, S.M., R.H. Webb, and J.A. Hubbard. 2011. A comparison of methods to assess long-term changes in Sonoran Desert vegetation. *Journal of Arid Environments* 75: 1228-1231.

Munson, S.M., J. Belnap, C.D. Schelz, M. Moran, and T.W. Carolin. 2011. On the brink of change: plant responses to climate on the Colorado Plateau. *Ecosphere* 2: Article 68.

- Munson, S.M., J. Belnap, G.S. Okin. 2011. Responses of wind erosion to climate-induced vegetation changes on the Colorado Plateau. *Proceedings of the National Academy of Sciences* 108: 3854-3859.
- Anderson, G., S. Rutman, and S.M. Munson. 2010. Plant population and habitat characteristics of the endemic Sonoran Desert cactus *Peniocereus striatus* in Organ Pipe Cactus National Monument, Arizona. *Madroño* 57: 220-228.
- Munson, S.M., T.J. Benton, W.K. Lauenroth, and I.C. Burke. 2010. Soil carbon flux following pulse precipitation events in the shortgrass steppe. *Ecological Research* 25: 205-211.
- Li, J., G.S. Okin, J.E. Herrick, J. Belnap, S.M. Munson, and M.E. Miller. 2010. A simple method to estimate threshold friction velocity of wind erosion in the field. *Geophysical Research Letters* 37: L10402.
- Munson, S.M. and W.K. Lauenroth. 2009. Plant population and community responses to removal of the dominant species in the shortgrass steppe. *Journal of Vegetation Science* 20: 224-232.
- Bontti, E.E., J.P. DeCant, S.M. Munson, M.A. Gathany, A. Przeszlowska, M.L. Haddix, S. Owens, I.C. Burke, W.J. Parton, and M.E. Harmon. 2009. Litter decomposition in grasslands of Central North America (US Great Plains). *Global Change Biology* 15: 1356-1363.
- Presentations:**
- Walker, B., J. Belnap, S.M. Munson, and R. Gill. December 2011. Field and lab soil measurements for determining threshold friction velocity across deserts in the southwestern U.S. Poster to be presented at AGU Meeting. San Francisco, CA.
- Munson, S.M., J. Belnap, R.L. Reynolds, G.S. Okin, T.H. Painter, J.C. Neff, H.L. Goldstein, G.N. Breit, and H.A. Lowers. October 2011. From source to sink: aeolian dust in Colorado Plateau ecosystems. Oral presentation to be given at Conference of Research on the Colorado Plateau, Flagstaff, AZ.
- Neff, J.C., D.P. Fernandez, S.M. Munson, and R.L. Reynolds. October 2011. Total suspended particulates, PM₁₀, PM_{2.5} measurements for use in biogeochemical studies; the role of large particles in aerosol concentrations and flux estimates. Poster to be presented at GSA Annual Meeting, Minneapolis, MN.
- Reynolds, R.L., H.L. Goldstein, B. Moskowicz, T. Berquo, C. Landry, C. Flagg, R.F. Kokaly, M. Redsteer, S.M. Munson, and T.H. Painter. October 2011. Characterization of iron minerals in atmospheric dust. Oral presentation to be given at GSA Annual Meeting, Minneapolis, MN.
- Goldstein, H.L., R.L. Reynolds, C. Lawrence, C. Landry, T.H. Painter, R.F. Kokaly, C. Flagg, S.M. Munson, B. Moskowicz, and M.H. Redsteer. October 2011. Properties of atmospheric mineral dust deposited on mountain snow cover in the western United States. Poster to be presented at GSA Annual Meeting, Minneapolis, MN.
- Munson, S.M., J. Belnap, J.A. Hubbard, R.H. Webb, S. Rutman, and D.E. Swann. August 2011. Forecasting climate change impacts to plant community composition in the Sonoran Desert. Oral presentation given at ESA Annual Meeting, Austin, TX.
- Munson, S.M., J. Belnap, J.A. Hubbard, K.L. Gallo, S. Rutman, M. Moran, C.D. Schelz, R.H. Webb, D.E. Swann. March 2011. Plant responses to climate in national parks of the southwestern U.S.: forecasts for land management. Oral presentation given at George Wright Society Conference, New Orleans, LA.
- Munson, S.M., J. Belnap, and G.S. Okin. May 2010. The responses of wind erosion to climate-induced vegetation changes on the Colorado Plateau. Oral presentation given at Wildland Shrub Symposium, Logan, UT.

- Goldstein, H.L., R.L. Reynolds, M.E. Miller, M.C. Reheis, F.E. Urban, G.N. Breit, J.W. Whitney, S.A. Morman, G.D. Clow, R.C. Bogle, S.M. Munson, and J. Belnap. April 2010. Climate change and land use effects on atmospheric dust in the western United States. Poster presented at Climate change in the Great Basin and Mojave Desert Meeting, Las Vegas, NV.
- Belnap, J., M.C. Reheis, and S.M. Munson. December 2009. Dust in the western U.S.: how biological, physical and human activities at the local scale interact to affect hydrologic function at the landscape scale. Oral presentation given at AGU Fall Meeting, San Francisco, CA.
- Li, J., G.S. Okin, J.E. Herrick, M.E. Miller, S.M. Munson, J. Belnap. December 2009. A simple method to predict threshold shear velocity in the field. Oral presentation given at AGU Fall Meeting, San Francisco, CA.
- Munson, S.M., J. Belnap, and C.D. Schelz. August 2009. Long-term vegetation changes in national parks of the southwestern US. Oral presentation given at ESA Annual Meeting, Albuquerque, NM.
- Belote, R.T., M.E. Miller, S.L. Garman, C.L. Lauver, J. Belnap, C.D. Allen, B. Bestelmeyer, J.E. Herrick, D.A. Pyke, G. Okin, and S.M. Munson. August 2009. Preventing regime shifts on the Colorado Plateau: Application of ecological threshold concepts to land management decision making. Poster presented at ESA Annual Meeting, Albuquerque, NM.
- Munson, S.M., W.K. Lauenroth, and I.C. Burke. July 2009. Soil carbon and nitrogen changes on semiarid Conservation Reserve Program lands. Poster presented at International Symposium on Soil Organic Dynamics, Colorado Springs, CO.
- Benton, T.J., S.M. Munson, W.K. Lauenroth, and I.C. Burke. August 2008. Soil respiration following pulse precipitation events in the shortgrass steppe. Oral presentation given at ESA Annual Meeting, Milwaukee, WI and Front Range Student Ecology Symposium, February, 2008, Fort Collins, CO.
- Munson, S.M. and W.K. Lauenroth. August 2007. Plant community and ecosystem properties in a semi-arid grassland chronosequence. Oral presentation given at ESA Annual Meeting, San Jose, CA.
- Turner, M.K., S.M. Munson, and W.K. Lauenroth. January 2007. Carbon and nitrogen input in Conservation Reserve Program lands in Northeastern Colorado. Poster presented at Shortgrass Steppe Symposium, Fort Collins, CO.
- Lauenroth, W.K. and S.M. Munson. August 2006. Plant community responses to removal of the dominant species: contrasting responses of subdominant and rare species. Poster presented at ESA Annual Meeting, Memphis, TN.
- Collins, S.L., E.H. Muldavin, S.M. Munson, and D.I. Moore. August 2004. Stability and dynamics in semi-arid grassland vegetation. Oral presentation made at ESA Annual Meeting, Portland, OR.
- Munson, S.M., E. H. Muldavin, S.L. Collins, and J.R. Gosz. January 2004. Multi-scale spatial and temporal dynamics of plant regrowth following a desert grassland fire. Oral presentation made at Sevilleta LTER Research Symposium, Albuquerque, NM.
- Gosz, J.R., S.M. Munson, and D.D. Pennington. January 2003. Intra/inter-decadal controls on creosote dynamics in a shrub-grass transition. Oral presentation made at Sevilleta LTER Research Symposium, Albuquerque, NM.

Reviewer for:

Ecology, Ecological Applications, Landscape Ecology, Science, Proceedings of the National Academy of Sciences, Plant and Soil, Journal of Vegetation Science, Restoration Ecology, Journal of Geophysical Research, Journal of Environmental Quality, Rangeland Ecology and Management